

Land Acquisition and Habitat Restoration

These projects are summarized in Table 7-10.

Table 7-10. Land Acquisition and Habitat Restoration Projects

Project Name	Description	Status	Lead Agency
Indian River Lagoon License Plate Program	Proceeds from the sale of the Indian River Lagoon plate are used to restore habitat and water quality through reconnection of historic floodplain, shoreline stabilization, mangrove restoration, stormwater treatment projects, and environmental education.	Continuing	SFWMD
North Fork, St. Lucie River Aquatic Preserve and Buffer Preserve.	Restoration of approximately 3,000 acres on the North Fork is proposed. To date, 1600 acres have been purchased. The major emphasis has centered on the St. Lucie River Aquatic Preserve and the adjacent Buffer Preserve. Most of these properties are being managed by FDEP collectively to promote native species and natural community function.	In progress	FDEP, SFWMD, Counties, City, NGOs
Atlantic Ridge	Acquisition of over 6,000 acres in the headwaters of the South Fork of the St. Lucie River through cooperative funding from State, SFWMD, and Martin County.	Completed	SFWMD
Allapattah Ranch – Phase 1.	Acquisition of 13,186 acres in the C-44 Basin through cooperative funding from State, SFWMD, and Martin County. Future use will be for natural storage and water quality treatment area	Completed	SFWMD

North Fork St. Lucie River

Restoration of 2,984 acres along the North Fork St. Lucie River (NFSLR) is proposed. 1,600 acres were purchased and are managed by local, state, and regional agencies. Appraisals have been ordered on remaining parcels. Since 1994, the Conservation and Recreation Lands Program, the SFWMD Save Our River's Program, Florida Communities Trust, and St. Lucie County's Environmental Lands program have spent about \$7 million on lands acquisition along the NFSLR and over \$1 million on removal of exotic plants. Public management and restoration will benefit existing public lands, eliminate an existing ornamental nursery and exotic plants, control access including prohibiting motor boats to protect and restore wetland functions that are needed to support the river and downstream estuaries.

The Oxbow EcoCenter is a St. Lucie County Environmental Learning Center. The preserve at the Oxbow is a living laboratory, offering year-round 'in-the-field' opportunities to youth groups, adults, and families on a variety of nature related subjects. Through partnership between St. Lucie County and the South Florida Water Management District, a 220-acre tract on the NFSLR was purchased using Environmentally Significant Lands and Save Our Rivers funds. The land is managed by St. Lucie County to sustain native wildlife, utilizing boardwalks, trails, bridges, and observation towers that allow visitors to fully experience the river and adjacent uplands.

In November, 1994, 67% of St. Lucie County voters approved a bond referendum authorizing issuance of ad valorem tax bonds, not to exceed \$20 million, to participate in state and federal land acquisition programs targeting the protection of natural areas. On December 7, 1995, Spruce Bluff, a 97-acre site along the North Fork was the first site acquired through this program. Since that time almost 600 acres have been acquired by St. Lucie County for recreation and preservation along the St. Lucie River. The County has adopted a greenway and blueway plan to guide future land acquisitions. (see also <http://www.stlucieco.gov/esl/>)

Lands for Healthy Rivers

In Martin County, a three-year sales tax was enacted after voters approved the Lands for Healthy Rivers and Natural Resource Protection in November 3, 1998. Half the money is for buying lands to restore the St. Lucie River and Indian River Lagoon through the Comprehensive Everglades Restoration Plan (CERP). The other half of the money is for buying lands for natural resource protection identified by the State's Florida Forever program. The three-year income from this tax totals \$47.2 million, \$9.2 million more than originally forecast. Over 3,100 acres acquired in the Atlantic Ridge Coastal Ecosystem property using the one-cent tax (Figure 7-17). Over 6,000 acres of the Atlantic Ridge is now in public ownership. Martin County invested \$6.5 million in the Atlantic Ridge CARL purchases. (see <http://www.martin.fl.us>, then click "Healthy Rivers" <http://www.martin.fl.us/GOVT/depts/gmd/gme/maps/waosc1b.jpg>)

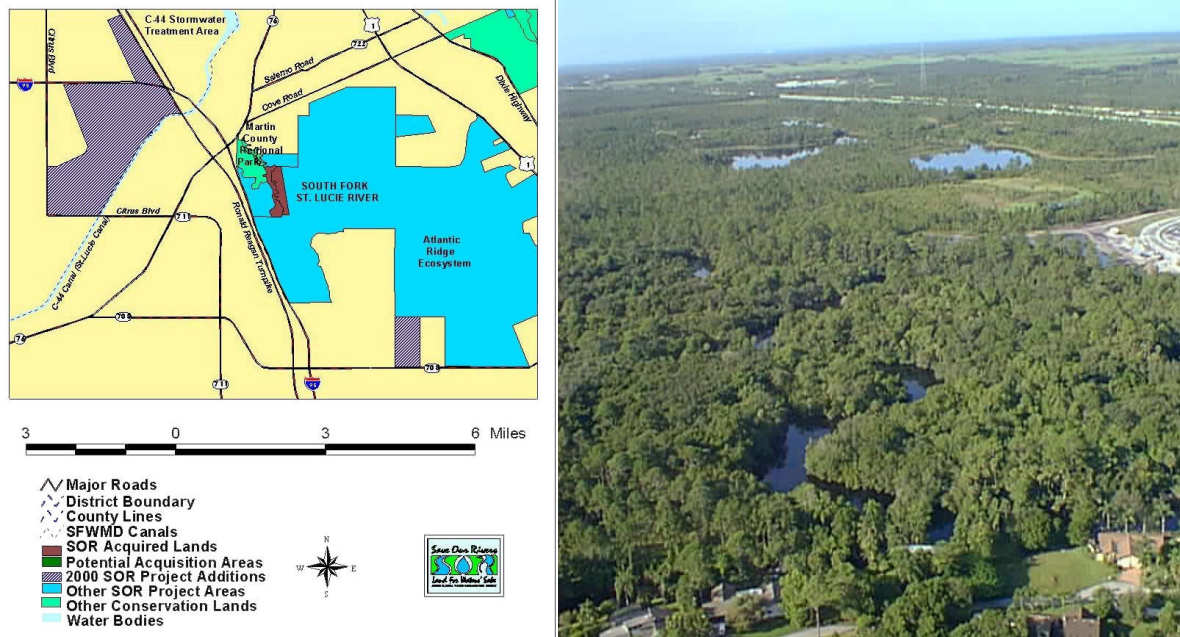


Figure 7-17 Atlantic Coastal Ridge Property and South Fork St. Lucie River

Allapattah Ranch Acquisition

Martin County also contributed \$7.5 million to the \$29.7 million deal to acquire 13,186 acres of the Allapattah Ranch was in March 2002. In addition to the initial purchase of property at Allapattah Ranch, the SFWMD has begun acquisition of property for the 4,398 acre C-23/24 north reservoir. Almost 100,000 additional acres are going to be required for the full implementation of the recommended plan contained in the IRL – South Plan. Figures 7-18 and 7-19 provide a summary of the project, facilities, and land requirements.

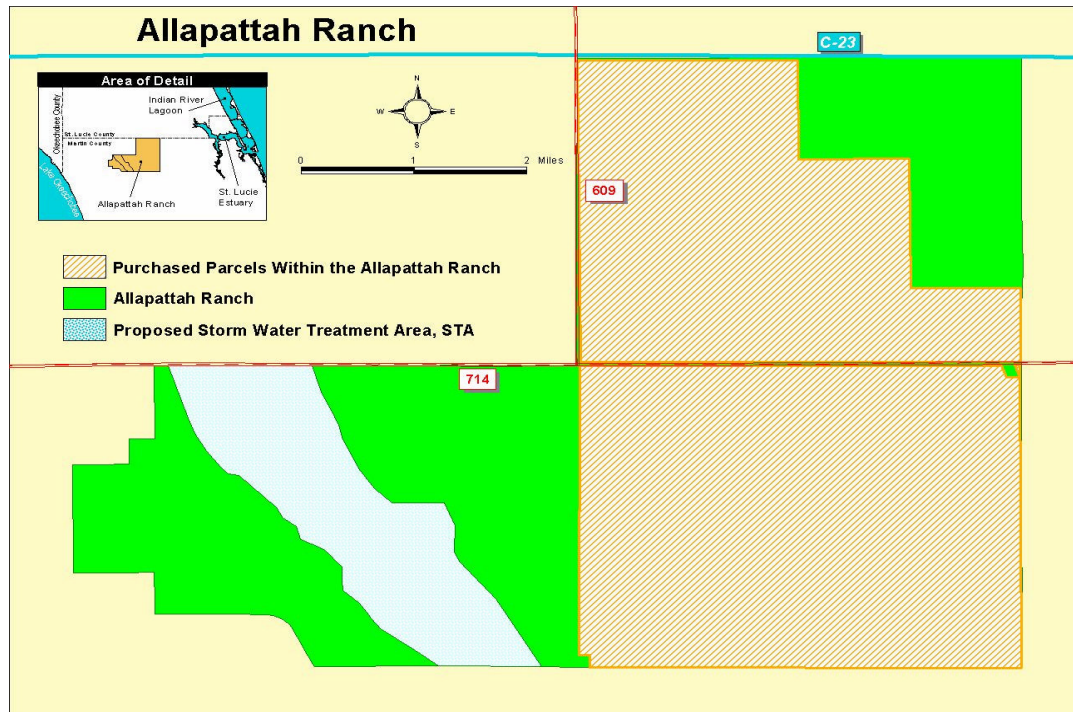


Figure 7-18. Allapattah Ranch Acquisition Project Boundaries and Purchase Status



Figure 7-19. Major Features of the Allapattah Ranch Acquisition and Wetland Restoration

City of Stuart Watershed Planning

The City of Stuart has adopted a comprehensive watershed/basin approach that includes land acquisition for preservation, habitat restoration and stormwater quality improvement projects. With a watershed planning approach, the City is able to establish a comprehensive view of the potential for stormwater quality improvements, freshwater discharge timing, acquisition and development of greenways and conservation lands, recreation opportunities and wildlife conservation. In 1998, the City formally adopted a Blueways/Greenways plan that identifies tributary creeks to the SLE, and related environmentally-sensitive lands, on a watershed basis.

Regional/ USACE Projects

These projects are summarized in **Table 7-11**.

Table 7-11. Pollutant Load Reduction - Non-point Sources –Joint USACOE Projects

Project Name	Description	Status	Lead Agency
Ten Mile Creek Basin Water Preserve Area	The Ten Mile Creek Project begins construction in 2002, in advance of facilities proposed in the IRL Feasibility Study - Recommended Plan. This 910 acre project will provide seasonal or temporary storage of stormwater from the Ten Mile Creek Basin, which is the largest sub-basin in the North Fork of the St. Lucie River and contributes the second largest volume of stormwater to the SLE. Improvements consist of a 500 acre above ground reservoir, a 110 acre polishing cell, and an adjoining natural preserve area. Estimated completion date is the end of 2004.	In progress	USACOE & SFWMD
Lake Okeechobee Water Supply and Environment (WSE) Regulation Schedule 2000	This joint project consists of a revised operating schedule for regulatory releases from Lake Okeechobee that incorporates additional environmental criteria and a variety of climate forecasting tools.	In progress	USACOE & SFWMD
IRL - South Plan 2002	The Recommended Plan, resulting from the multi-year IRL Feasibility Study, incorporates construction of reservoirs, canals, pump stations, stormwater treatment areas, and natural storage and water quality treatment areas, to reduce the impacts of watershed runoff. Significant land acquisition for habitat restoration and preservation is included in the Plan. The plan depends on completion of other CERP components to reduce high volume Lake Okeechobee discharges to the SLE. All elements in the Plan are anticipated to be finished by 2010, if future projected funding requirements are met.	In progress	USACOE & SFWMD

Ten Mile Creek Water Preserve Area.

This is one of the largest stormwater and restoration improvement projects to impact the SLE and River in advance of the CERP IRL – South. Major features of this plan are shown in Figure 7-20. This project is a Critical Restoration Project that has been going through land acquisition and project design for several years. Construction will begin in the summer of 2002. The purpose of this water preserve area (WPA) is the seasonal or temporary storage of stormwater from the Ten-Mile Creek Basin. The Ten-Mile Creek Basin is the largest sub-basin and contributes the second largest volume of stormwater to the St. Lucie River Estuary (SLE). Stormwater will be captured in a reservoir and then passed through a polishing cell for additional water quality treatment before being released into the North Fork. Stored water can be released in the drier winter months to augment current insufficient flows. The project is a 50/50 cost share between the SFWMD and the USACOE.

The project is situated at the headwaters of the North Fork of the St. Lucie River Aquatic Preserve. The Preserve is one of the last remaining freshwater/estuarine wilderness areas in this region of Florida and supports a wide variety of fish and wildlife. The total site is 910 acres and consists of 725 acres of a former orange grove and 185 acres of pastureland. Ten-Mile Creek runs west to east across the northern portion of the site.

Infrastructure improvements for this site include the construction of an aboveground reservoir with a pump station for filling the reservoir from Ten-Mile Creek and a gated water-level control structure for the release of water back to the creek. The total project will consist of a 500-acre reservoir, a polishing cell of roughly 110 acres and an adjoining natural preserve area consisting

TEN MILE CREEK WATER PRESERVE AREA

A CENTRAL AND SOUTHERN FLORIDA ECOSYSTEM
CRITICAL RESTORATION PROJECT

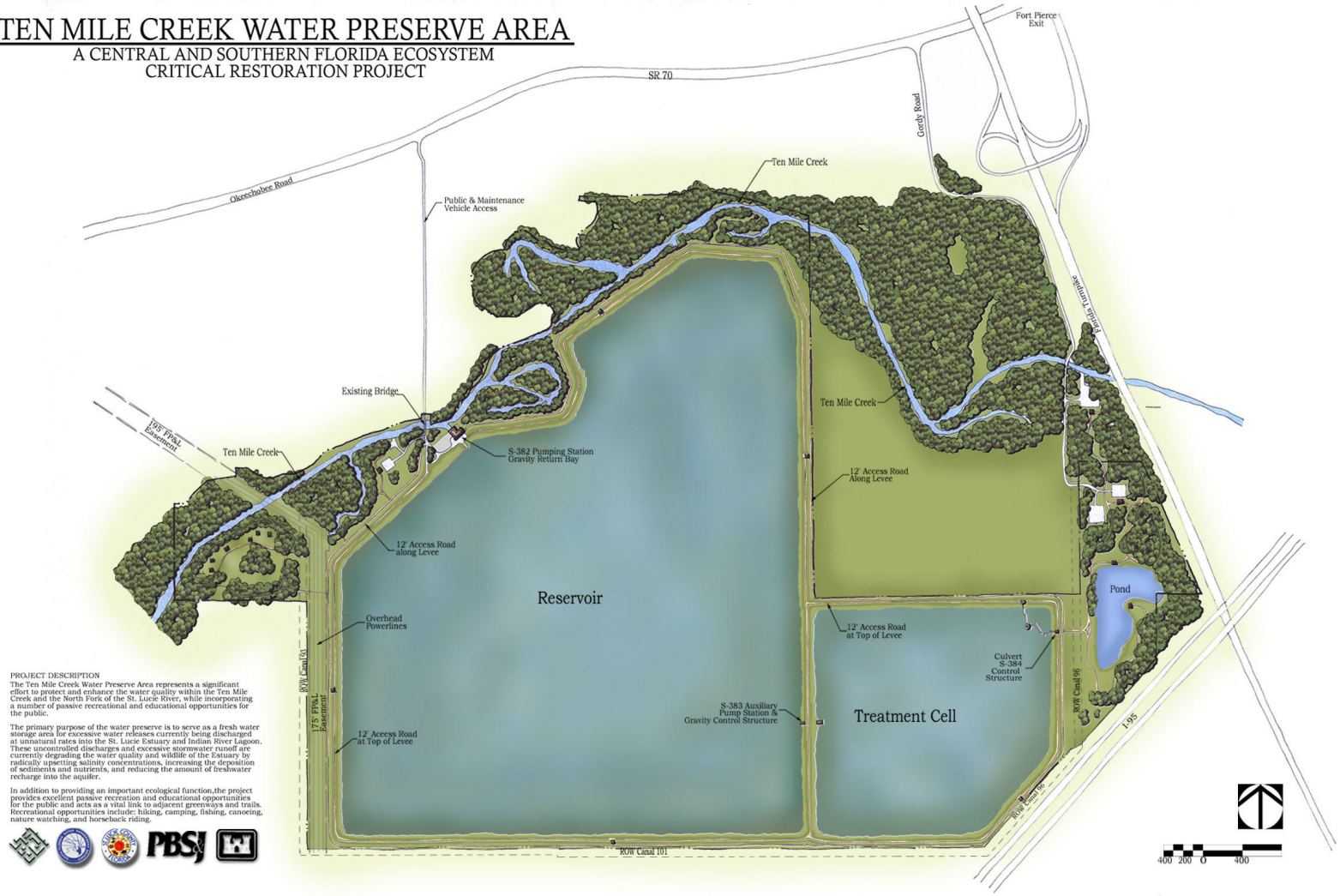


Figure 7-20. Tenmile Creek Water Preserve Area Project

of scrub habitat and a borrow pit. Based upon existing topography, stored water depths in the reservoir will average ten feet. Total storage capacity will be approximately 5,000 acre-feet. The height of the reservoir levee will range from about 12 to 15 feet above surrounding natural ground. Side slopes for the levees will be about 1 vertical to 4 horizontal. Construction will begin in the summer of 2003, and project completion is planned for December 2004.

Lake Okeechobee.

The USACOE formally adopted a new regulation schedule for the lake in July 2000. This schedule, the Water Supply and Environment (WSE) schedule uses climate forecasting to determine how much water to release from the lake under flood control conditions, and has the potential to provide environment benefits for the lake and downstream systems without sacrificing water supply. The Lake Okeechobee SWIM Plan Update was also recently completed (SFWMD, 2002a).

Indian River Lagoon – South Feasibility Study

The Indian River Lagoon - South Feasibility Study identifies a recommended plan that, when implemented, will help restore, protect, enhance, and preserve the south Indian River Lagoon and the St. Lucie Estuary and River. The IRL-South Plan provides an opportunity to reverse the course of declining ecosystem health and restore a highly productive system. The reconnaissance and feasibility phases of the Restudy demonstrated that the Indian River Lagoon is an integral part of the Comprehensive Everglades Restoration Plan (CERP). The Indian River Lagoon – South Feasibility Study is a continuation of the Restudy, with a purpose to further develop the conceptual designs of CERP components within Martin and St. Lucie counties. Hydrologic modeling, environmental modeling, water quality analyses, and water supply studies were conducted to refine the information developed in CERP. The IRL – South Plan reduces the impacts from the watershed runoff while relying on the development of other CERP components which significantly reduce the number and frequency of high volume discharges from Lake Okeechobee through C-44 canal to the estuarine system. See Chapter 6 for additional details on plan components, also <http://www.sfwmd.gov>

Public Involvement and Intergovernmental Coordination

Public Involvement.

In 1991, the St. Lucie River Initiative (SLRI), a non-profit organization, was formed. The SLRI was made up of concerned business, conservation, and other community leaders, area citizens, and members of the scientific community. The SLRI has been successful in focusing public attention on the need to return the SLE and River a more healthy and productive resource. The SLRI has also had significant input with local governments and the agencies involved in SWIM, the South Florida Ecosystem Restoration Task Force, the USACOE Restudy, and the IRL Feasibility Study.

In 1998, as a result of the discharges from Lake Okeechobee and the resulting economic impacts to the local tourism and recreational business, the Rivers Coalition was formed. The Rivers Coalition is a broad-based non-profit organization composed of the business community, conservation groups, fisherman, and local agencies, that lobbies for river improvement and coordination of restoration efforts.

Another key organization is the Florida Oceanographic Society, a non-profit organization founded in 1964. The organization's mission is to protect, preserve and restore Florida's ocean

and coastal ecosystems through education, research and personal stewardship. The Florida Oceanographic Coastal Center is located on a 40-acre parcel on Hutchinson Island. Situated between the Atlantic Ocean and the Indian River Lagoon. With its coastal hardwood hammocks and mangrove forest communities, the site provides excellent opportunities for education and research aimed at increasing the general knowledge of these unique environments.

Coordination with Other Agency Plans.

Various SFWMD work groups and the Martin/St. Lucie (MSL) Service Center have extensive coordination and regular communication with the IRL NEP, FDEP, FDACS, SJRWMD, and Federal agencies such as the USACE, USGS, USFWS, etc. Likewise, the MSL Service Center works closely with local governments and stormwater utilities in St. Lucie and Martin counties.

Development of the IRL - South Feasibility Study required extensive interaction among local, state and Federal agencies and the various stakeholders in the watershed, and this will continue as the project moves forward. The IRL South Feasibility Study is undergoing final review, prior to final submission to Congress for authorization and funding under WRDA 2002. Updates and coordination associated with SWIM, the UEC Water Supply Plan, UEC BMPs, PLRGs and potential TMDLs, also require that the SFWMD work closely with various agencies.

The South Florida Ecosystem Restoration Task Force appointed the St. Lucie River Issues Team. The team is made up of a variety of federal, state, and local governments in addition to agricultural and environmental interests. The FDEP Port St. Lucie Regional Office Director and the Director of the SFWMD Martin/St. Lucie Service Center meet on a regular basis and co-chair the St. Lucie River Issues Team. The team prepared a report on the conditions of the SLE in response to the 1998 water releases, and developed consensus on local projects that could be undertaken to make immediate or near term improvements to the SLE & River and the SURL. The team conducts an annual evaluation of projects, prepares quarterly progress reports and provides additional opportunities for consistent coordination and communication. The team nominates local/regional projects for matching dollars from various state and federal sources. To date, the Issues Team has received more than \$26 million in state and federal funds, which was matched with SFWMD and local government funds to total more than \$52 million.

Recently, the University of Florida, IFAS, Indian River Research and Education Center coordinated a Research Forum that allowed the Indian River Citrus BMP Working Group and the St. Lucie Issues Team to present information on the status of current projects for agencies stakeholders and the public. It is anticipated that this will be an annual event to provide information and coordinate project planning and development in the South IRL/SLE Watershed.

As outlined in the Florida Watershed Restoration Act (1999), Florida agriculture is encouraged to develop effective voluntary BMPs to help meet state water quality goals. The Indian River Citrus BMP Implementation Committee, a collaborative public/private group, guides the process for voluntary implementation of citrus BMPs. Activities of the committee include identification of research and educational needs, work on rule development, and on-going support for implementation of science based BMPs. Aiding in this effort are various agencies and groups that provide funding for technical projects and cost sharing for grower implementations.

Future Resource Conditions

Over the next decade, significant opportunities exist for restoration and preservation of the St. Lucie Estuary and its watershed. The preceding sections have summarized the current issues

and the scope of both opportunities and challenges. Positive changes are being made by public and private stakeholders, and plans are in place to accelerate and enhance these efforts.

Population and Land Use Trends

The SLE watershed now has a total area of 501,000 acres, of which approximately 50% is agricultural lands, 17% is urban and only 16% remains as wetlands. However, this is clearly a watershed in transition. The pace of development and population growth will continue to challenge our abilities to enhance water quality and preserve the natural resources and lifestyles that have made this watershed so attractive. It is anticipated that the land use pattern in the watershed will generally remain the same, i.e., the largest population will be concentrated in urban coastal areas and agriculture will dominate the western portion of the watershed. However, there is a significant shift of residential land use occurring that will impact the currently undeveloped portion of the watershed. Both Martin County and the City of Port St. Lucie are currently planning projects to build new bridges over the St. Lucie River, to ease traffic congestion from the urban coastal areas to the western portion of the watershed.

Martin County population grew 25% from 100,900 in 1990 to 126,731 in 2000 and is anticipated to be approximately 154,000 by the year 2010. Recent population projections indicate that St. Lucie County grew 28% from 150,171 in 1990 to 192,695 in 2000 and will continue to add 3,000 new households a year for the next twenty years. Southern St. Lucie County is most likely to continue rapid residential and associated commercial development. St. Lucie County population is projected to be almost 300,000 by the year 2010. This projected growth includes the City of Port St. Lucie, which is currently the largest City on the Treasure Coast and, according to the 2000 Census, is the second fastest growing City in the State of Florida.

Recent studies continue to indicate that pollution in coastal waters is increasing, due to urban runoff from growth, increased amounts of impervious surfaces and atmospheric deposition. Much of this non-point source pollution comes directly from increases in residential and commercial development, and the associated impacts of stormwater discharge, automobiles, trucks, boats, and two-stroke engines.

<http://www.nap.edu/books/0309084385/html/>

http://www.pewoceans.org/reports/water_pollution_sprawl.pdf

The Next Five Years -

Seagrass & Oysters (VEC) / Water Quality / Bathymetry

- Finalize strategies for SLE and River oyster restoration.
- Finalize strategies for SLE and River SAV restoration.
- Continue documentation of the status of existing VEC in the SLE and River.
- Continue existing WQM, SE, GW/SW, and Tide/Salinity networks.
- Evaluate changes to SLT network to include stage data and site additions or deletions.
- Provide Annual Reporting on SLT network data.
- Continue the Martin County Water Monitoring Network.
- Continue the “Canal Watch” Surface water Quality Monitoring Network.
- Provide SLE Water Quality Summary Report in 2005.

Strategies for Pollutant Load Reduction

PLRG Implementation

- Finalize strategies for PLRG adoption and implementation.
- Publish proposed PLRGs for SLE.

Non-point Source Strategy – Stormwater Discharge

- Continue to support existing programs for stormwater education in the watershed.
- Continue to support the Indian River Citrus League Voluntary BMP Implementation Program.
- Continue support for research and pilot projects to validate agricultural and urban BMPs in the watershed.
- Continue support for stormwater retrofit projects in the watershed.
- Continue support for the St. Lucie River Issues Team Program.

Non-point Source Strategy – Muck

- Publish results of Joint Pilot Project on SLE Muck Removal, Utilization, and Disposal.
- Finalize strategies for SLE muck removal and disposal.

Non-point Source Strategy – Septic Tanks

- Provide support for septic tank elimination projects where studies justify the need.

Non-point Source Strategy –Joint USACOE Projects

- Construct and operate the Ten Mile Creek Water Preserve Area Project.
- Publish a report on implementation of the Lake Okeechobee WSE Regulation Schedule and its impact on discharges to the SLE.
- Continue implementation of the IRL-South Plan as currently proposed.

Monitoring, Modeling, and Applied Research

- Continued application of VEC based management goals and strategies for the SLE and watershed.
- Development and application of the watershed water quality model (WaSh).
- Development and application of the three-dimensional estuary water quality model.
- Determination of final Pollutant Load Reduction Goals (PLRGs) for the SLE.
- Participation in the Total Maximum Daily Loads (TMDLs) process for the SLE and watershed.
- Monitoring, modeling, and field studies to assess the effects of St. Lucie MFL criteria.
- Monitoring, modeling, and field studies to assess the effects of the Ten-Mile Creek project
- Evaluate the oligohaline zone of the North Fork of the SLR and its function as a nursery area.

- Document the response of SAV, and oysters to rapid changes in salinity through a series of controlled experiments at the Gumbo-Limbo Mesocosm Facility.
- Completion of benthic nutrient loading studies for the St. Lucie River and Estuary.
- Completion of floodplain reconnection pilot projects in the North Fork.
- Completion of oyster restoration pilot projects in the St. Lucie River and Estuary.
- Evaluate the relationship of exchange between the Atlantic Ocean water with the IRL and SLE to sea level rise.
- Evaluate the relationship of near-shore reef to altered freshwater flows.
- Analyze the relationship of macro-invertebrate community shift to altered salinity envelope

Land Acquisition and Habitat Restoration

- Continue land acquisition in support of IRL-South Plan Implementation.
- Continue land acquisition in support of St. Lucie River North Fork restoration and preservation.
 - Continue land acquisition in support of St. Lucie River South Fork restoration and preservation.
 - Continue to utilize IRL License Plate Program for project funding.
 - Continue to utilize the St. Lucie River Issues Team Program for project funding.
 - Continue shoreline habitat restoration and mangrove planting where appropriate.

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